



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/603,668

06/25/2003

Johann Schuster

P03,0227

3719

26574

7590

05/04/2004

SCHIFF HARDIN, LLP
PATENT DEPARTMENT
6600 SEARS TOWER
CHICAGO, IL 60606-6473

EXAMINER

SHRIVASTAV, BRIJ B

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,668

Applicant(s)

SCHUSTER ET AL.

Examiner

Brij B Shrivastav

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 9-12, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 3-8 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1, 2, and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (US 5,345,177), and further in view of Anne (US 4,889,450).

As regards to claim 1, Sato et al teach a connection device for positioning a gradient coil assembly in a basic magnet assembly of a nuclear magnetic resonance tomography apparatus (figures 1-3, columns 2 and 3, lines 67-68 and 5-68). Sato et al further teach the gradient coil assembly having a primary cylindrical external surface and the basic field magnet assembly having a primary cylindrical opening for receiving the gradient coil assembly, and the cylindrical external surface of the gradient coil assembly being located in a fixed state inside the internal cylindrical surface of the basic field magnet assembly with a tube shaped intervening space therebetween (figures 1, 6 and 7; columns 3 and 4, lines 5-44, 63-68 and 1-26). However, Sato et al do not specifically teach the connection device being primarily a closed annular clamp element with a conical internal surface engaging a portion of an external surface of the gradient coil assembly as the clamp element is centered between the gradient coil assembly

Art Unit: 2859

and the basic field magnet assembly. Anne teaches the connection device being primarily a closed annular clamp element between two gas pipes with a conical internal surface engaging the two pipes tightly together, an engaging system similar to a engage tightly an external surface of the gradient coil assembly and the basic field magnet assembly (figures 1 and 4, numeral 1)

It would have been obvious to one of ordinary skill in the art to adapt connection device of Anne having a closed annular clamp element with a conical internal surface with the main field magnet assembly and gradient coil assembly of Sato et al to simplify the installation and improve the damping of vibrations during gradient coil operation, improving image quality.

2. Claims 2 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al (US 5,345,177) and Anne (US 4,889,450) as applied to claim 1 above, and further in view of Sellers et al (US 6,107,799)

As regards to claims 2 and 9-13, Neither Sato et al nor Anne et al do not specifically teach clamp element made of nonconductive material and is held by bolts to tightly fit and engage the gradient coil assembly with the basic magnetic field assembly, both being symmetrically aligned along an axis with each other. Sellers teach clamp element made of nonconductive material and is held by bolts to tightly fit and engage the gradient coil assembly with the basic magnetic field assembly, both being symmetrically aligned along an axis with each other (figures 1-4). It would have been obvious to one of ordinary skill in the art to adapt teaching of Seller et al with the teachings of Sato et al and Anne to simplify the installation to improve damping during imaging.

Art Unit: 2859

3. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sellers et al (US 6,107,799), and further in view of Anne (US 4,889,450).

As regards to claim 14, Sellers et al teach a nuclear magnetic resonance tomography apparatus having a cylindrical gradient coil assembly having an inside diameter to enable insertion of a tray with a patient thereon (figures 1-4, numeral 14; column 5, lines 16-44). The gradient coil assembly being telescopically received in a cylindrical basic field magnet assembly and positioned with an annular spacing between an outer cylindrical surface of the gradient coil assembly and an inner cylindrical surface of the basic field magnet assembly (figures 1-4, numerals 10, 12, 14 and 16). However, Sellers et al do not specifically teach a connecting device including an annular clamp element with a conical internal surface, said conical internal surface engaging a conical external surface at an end of the gradient coil assembly as the clamp element is inserted between the gradient coil assembly and the basic field magnet assembly. Anne teaches a connecting device including an annular clamp element with a conical internal surface, said conical internal surface engaging a conical external surface at an end of the gradient coil assembly as the clamp element is inserted between the gradient coil assembly and the basic field magnet assembly (figures 1 and 4, numeral 1).

It would have been obvious to one of ordinary skill in the art to adapt connection device of Anne having a closed annular clamp element with a conical internal surface with the main field magnet assembly and gradient coil assembly

Art Unit: 2859

of Sellers et al to simplify the installation and improve the damping of vibrations during gradient coil operation, improving image quality.

As regards to claim 15, Sellers et al teach a method for connecting a gradient coil assembly within a basic field magnet assembly having a cylindrical interior surface, said method comprising positioning the gradient coil assembly in the basic field magnet assembly (figures 1-4; columns 5 and 6, lines 15-55 and 17-67). However, Sellers et al do not inserting a tapered end of an annular clamp element between an end of the gradient coil assembly and the interior surface of the basic field magnet assembly and forcing the clamp element into tight engagement with the end of the gradient coil assembly to hold the gradient coil assembly in a spaced relationship within the basic field magnet assembly with an annular gap between an exterior surface of the gradient coil assembly and the interior surface of the basic field magnet assembly. Anne teaches inserting a tapered end of an annular clamp element (figures 1 and 4, numeral 1) between an end of a pipe and the interior surface of the an another gas pipe assembly and forcing the clamp element into tight engagement between the two pipes (figure 4, nimerals1, 21 and 30; column 3, lines 28-40), a similar process to the end of the gradient coil assembly to hold the gradient coil assembly in a spaced relationship within the basic field magnet assembly with an annular gap between an exterior surface of the gradient coil assembly and the interior surface of the basic field magnet assembly.

It would have been obvious to one of ordinary skill in the art to adapt connection device of Anne having a closed annular clamp element with a conical

Art Unit: 2859

internal surface with the main field magnet assembly and gradient coil assembly of Sellers et al to simplify the installation and improve the damping of vibrations during gradient coil operation, improving image quality.

4. Claims 3-8 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

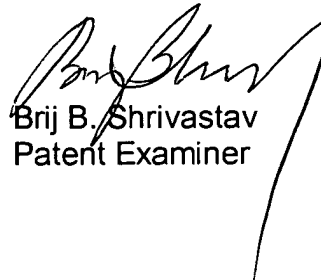
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2859

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bbs
April 30, 2004



Brij B. Shrivastav
Patent Examiner